

American **FRUIT GROWER**



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On *Page 10* of this issue in "My Experience with Sprinkler Irrigation" Henry Gramling tells how he irrigates 160 acres of peaches. He is using a sprinkler system that includes Reynolds Aluminum pipe — 12,000 feet in all.

In this article, Gramling says, "We have used sprinkler irrigation on peaches and seen crops saved or the value of a few acres increased *thousands* of dollars where it was used."

Other successful users of Reynolds Aluminum pipe are mentioned in "Florida turns to Sprinkler Irrigation" on *Page 13*. And for timely advice, turn to "Should you plan for Irrigation Shortages?" *Page 12*.

Reynolds Aluminum Irrigation Pipe is lightweight — one man can carry two 20-foot sections. Growers with installations of 10 acres or less cut operating costs up to 75% the first year... eliminating the hiring

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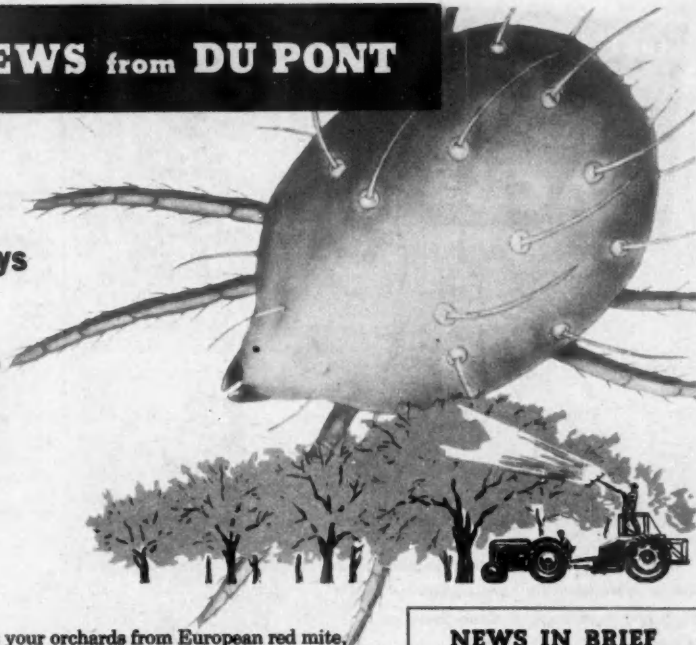


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NEWS IN BRIEF

Up to 74% more scab-free fruit is the report from New York State apple orchards where "Fermate" fungicide proved itself far better than sulfur for scab control and fruit yield. "Fermate" controlled scab without injury to foliage, even in the hottest weather.

With peaches, "Zerlate" controls brown rot and keeps off the Japanese beetles at the same time. "Zerlate" has proved to be consistently excellent for control of brown rot and leaf spots on cherries, plums and peaches.

Last year's experience of grape growers again showed how superior "Fermate" is for control of black rot. Some of the highest yields and highest sugar content were reported from vineyards where it was used regularly.

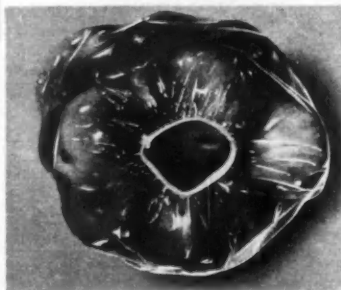
For cherries, early apples and other early harvested fruit, Du Pont "Marlate" methoxychlor insecticide is highly recommended. It gives excellent control of cherry fruit fly and fruit worm, plum curculio, apple flea weevil, codling moth, Oriental fruit moth and Japanese beetle. And it can be used close to harvest because the residue stays effective against insects, yet it is not hazardous to people who eat the fruit.

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AMERICAN FRUIT GROWER

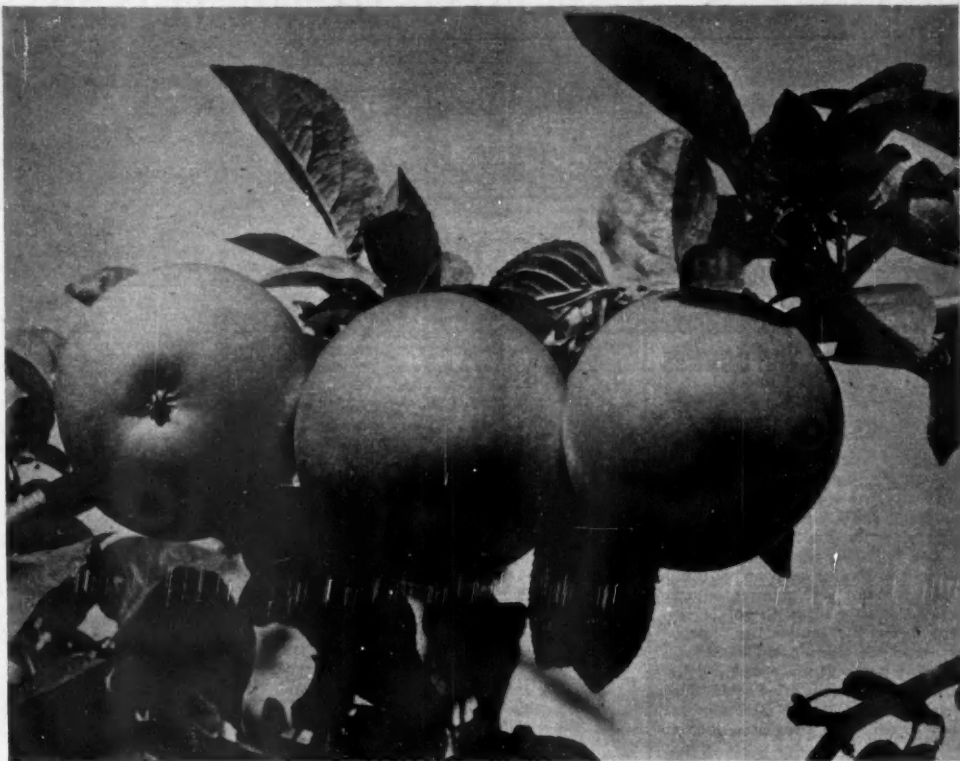
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and burn
only 1 gallon
of gas...



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LETTERS TO THE EDITOR

Strawberry Yield Records

Dear Editor:

In your March issue, you asked for reports on strawberry yields over 10,000 quarts. W. F. Allen, Salisbury, Md., gathered and sold 33,360 quarts of Catskill strawberries from a patch measuring exactly three acres.

I think the greatest yield per acre came from the Willamette Valley, Oregon, where the county agricultural agent at Salem made affidavit that he had supervised the gathering of one acre of the Washington variety, and from this one acre 43,260 one-pound boxes of strawberries were gathered. A one-pound box equals almost one quart. Farmington, Mo. E. Longenecker

Dear Sir:

Gaines Ivans, Spencer, Tenn., had a yield of 10,368 quarts. This was checked by G. T. Byrd of the University of Tennessee and by County Agent Arley Hamby, Spencer, Tenn. The variety was the Tennessee Beauty.

In regards to the article "Fruit Talk," in the March issue, we are happy to have the privilege of furnishing George Delbard with nine varieties of our strawberry plants. Dayton, Tenn. M. E. Romines

Salem, Oregon, wins the prize for having the greatest strawberry yields. At a pound and one-half per quart, Salem's record yield would be 28,840 quarts per acre, enough to make any strawberry picker's back ache. However, the biggest story in strawberry yields is to be told from California where the introduction of new ever-bearing varieties has jumped yields tremendously—as high as 20 tons an acre, it is reported. As a result, California's strawberry production topped Oregon's for the first time last season.—Ed.

Dear Editor:

My backyard strawberry plot, planted in 1949 in rows 40 inches apart, produced as follows in 1950.

Variety	Lineal feet of row	Quarts	Rate per acre
Premier	214	115	7,026
Catskill	180	129	9,365
Nectarena	165	134	10,613

After July 5, the raspberries came on, and I left the balance of the strawberries to my neighbors. The total pick would have been well over the rate of 11,000 quarts for Nectarena and 10,000 for Catskill.

Dearborn, Mich. B. L. LaRoy

Safety Tip

Dear Sir:

Here is a safety tip for fruit growers while spraying from the top of a sprayer mounted on a truck chassis.

We cover the top of our sprayer with wire lath, and the problem of slipping is solved, especially while spraying with oil. Mt. Vernon, Ohio Glen Mills

Weather Chart

Dear Sir:

I have found the Weather and Compatibility Charts most helpful, and I would like to obtain two more copies of the Weather Chart in color. Will you please let me know whether this chart is available on heavy paper, as is the Compatibility Chart, and at what price?

The Fruit Pest Handbook is an excellent feature, and I am wondering whether you know of any source of color charts of these and other fruit pests. As a commercial spray man, working with agricultural pest control, I am interested in obtaining such color charts for use in field work.

Felton, Calif.

Charles A. Wood

Reprints of the Weather Chart, which shows the effect of five weather conditions on sprays and dusts, are now available and may be obtained by sending 10 cents in coin or stamps to AMERICAN FRUIT GROWER.

Judging by the response from our readers, the Fruit Pest Handbook series is fulfilling a real need for insect identification and control information. Color illustrations of fruit insects would be excellent, but we have yet to find color photos of this kind.—Ed.

More Grafts

Dear Editor:

It was interesting to read Clara Bell's account of the number of apple varieties grafted on one tree by Mr. Weineke of Illinois, but we can go that one better.

I wonder just how jittery the editor would get pruning our "blood bank" apple tree (my husband's pride and joy) which has about 100 grafts of various apple varieties, many of them old-time varieties which my husband collects.

Alameda, Calif.

Mrs. C. Morgan

Sheep and Deer

Dear Editor:

Referring to the "Letters to the Editor" column, I believe the reason deer do not graze where sheep are is not because the sheep graze so close, but because the deer dislike the sheep odor. My people were cattle men in western Texas at the time sheep were brought into that part of the country. They found that cattle, like deer, would not graze or drink where the sheep did, except when forced to do so.

Fort Worth, Tex.

W. W. Barber

Planting Chestnuts

Dear Sir:

The "Question Box" in the April, 1951, issue carried an answer concerning the Chinese chestnut which I believe is in error and may lead to some loss of nuts.

I refer specifically to the recommendation that the nuts be placed in a "closed" container for two or three weeks after harvest and before planting. Freshly harvested Chinese chestnuts placed in a closed container at ordinary air temperatures will heat and spoil very rapidly.

It is desirable either to plant them immediately after harvest (at two or three-day intervals) or place them in closed containers with at least one hole in the container for ventilation and hold them in cold storage at 33° to 45° F. until planting. Fifty-pound lard cans make fine storage containers.

I also disagree with the statement that the trees should be left in the nursery row for two years as "one-year-old trees do not transplant well." Our farm sells one-year-old trees by the thousands and all reports we have had indicate that a very high percentage of the trees live.

Leesburg, Ga.

Max B. Hardy

AMERICAN FRUIT GROWER

Here's Better Control of Preharvest Drop!

An important new product for the orchardist, Color-Set 1004* is the result of extensive testing on many apple varieties by several state experiment stations. You can rely on Color-Set 1004 to keep apples "tied" to the trees until they reach top size, color and quality—as you depend on Dow's complete line of orchard protection materials to do specific jobs well and to work effectively together.

- Color-Set 1004 simplifies preharvest apple drop control because timing is not as critical as with 1-naphthalene acetic acid formulations. You can apply it *earlier* and get the benefit of its effectiveness over a *longer* period of time.
- Color-Set 1004 is effective on all varieties of apples tested to date. It contains a salt of 2,4,5-trichlorophenoxypropionic acid as the active ingredient.
- The 1950 experiments showed that Color-Set 1004 was effective in improving the color of apples. Extensive trials will be undertaken this season.

Color-Set 1004 has been developed by Dow and is the first real improvement in preharvest drop control since 1-naphthalene acetic acid was introduced. We invite growers to compare performance of Color-Set 1004 with any material which they have been using for drop control. For further information write Dept. AG-169 in Midland stating the name of your nearest Agricultural Chemical dealer.

*Color-Set 1004 is a trade mark of The Dow Chemical Company

COLOR-SET 1004

(developed under the experimental number A-1004)

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BEFORE
HAS IT BEEN
POSSIBLE TO KILL
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SPRINKLERS FOR BERRIES

By WESLEY P. JUDKINS
Virginia Polytechnic Institute

LARGE YIELDS of high quality berries cannot be obtained unless the plants have adequate water. Rainfall during the summer in the eastern United States is frequently inadequate to keep plants growing in a healthy, vigorous condition. A little extra water applied at the right time by means of supplemental irrigation may mean the difference between a fine crop and a partial or complete failure.

Numerous experiments and many commercially irrigated berry plantings have demonstrated conclusively that irrigation will return handsome profits to the grower. An irrigated field of strawberries at the Ohio Experiment Station produced more than 5,500 quarts of berries per acre, whereas an unirrigated field produced slightly less than 3,000 quarts. A farmer in Rhea County, Tennessee, by means of irrigation increased the value of his strawberry crop by an average of over \$300 per acre in the late 1940's.

Many other examples of increased yields and profits resulting from irrigation could be cited. The actual benefits which will be secured depend on the soil type upon which the planting is located and the amount and distribution of rainfall during the growing season.

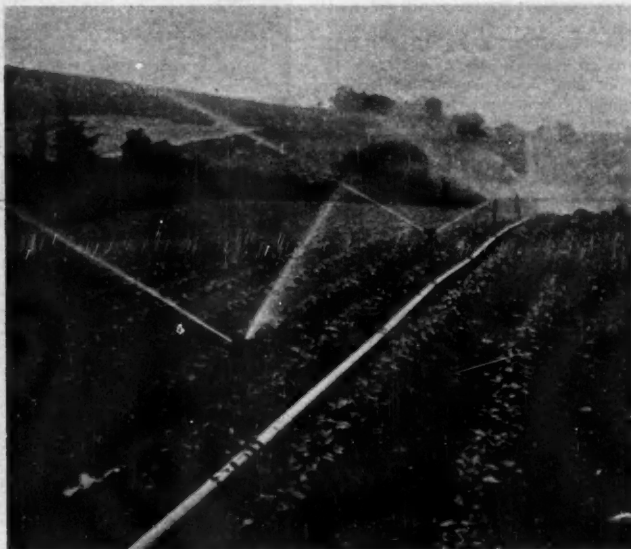
Most economic plants in the Temperate Zone require about one acre-inch of water every seven to 10 days. The actual amount varies somewhat depending upon the plant population per acre and the vigor of growth. Water loss is, of course, greater during hot, dry weather than during cool, cloudy periods. In spite of these differences, however, the basic requirement of one acre-inch every week or 10 days is a good figure to bear in mind.

The soil type has an important bearing on the amount of reserve water it can hold and supply to the plants. Coarse, sandy soils have a low water-holding capacity whereas

depth of rooting of the crop being grown.

Strawberries, for example, have the bulk of their roots in the top foot of soil. A sandy loam could supply this crop with moisture for about seven to 10 days since this soil type has an available water-holding capacity of one acre-inch per acre foot.

If the strawberries were located on a silt loam soil which has an available water-holding capacity of one and one-half acre-inches per acre foot, the crop would grow satisfactorily for 10 to 15 days before additional irrigation or rainfall was needed.



A little extra water at the right time may mean the difference between a fine crop and a partial or complete failure. Shown above is a portable sprinkler system.

heavy clay soils hold a considerably larger amount. A table showing the approximate available water-holding capacity for different soil types is given to assist in more accurately determining how much irrigation water must be applied.

RELATION OF SOIL TYPE TO AVAILABLE
WATER-HOLDING CAPACITY

Soil Type	Texture	Available Water per acre-foot
Sand	Coarse	0.5 acre-inch
Sandy loam	Coarse-fine	1.0 acre-inch
Silt loam	Fine	1.5 acre-inches
Clay	Very fine	2.0 acre-inches

It is very easy to use this table in calculating how long the water in the soil will maintain the plants in a satisfactory stage of growth. The only additional information needed is a knowledge of the approximate

These determinations are based on a soil which was well supplied with water at the beginning of the period in question.

In other words, a strawberry planting on a sandy loam soil will continue to make satisfactory growth for only seven to 10 days without rain or irrigation. Since there are frequently periods of several weeks without rain in the eastern United States, it is obvious that irrigation is very important if maximum yields are to be obtained.

The same table can be used to determine the irrigation needs of deeper rooted berry crops like raspberries. In a favorable soil, raspberries will root at least two feet deep and will often penetrate to a

(Continued on page 18)

MY EXPERIENCES WITH SPRINKLER IRRIGATION

A survey of changes growers would make if they could do the job over again.

THERE are many lessons to be learned from the experiences of growers with sprinkler irrigation systems. To record these experiences so they might serve as a guide to others, **AMERICAN FRUIT GROWER** asked 13 growers who pioneered with different kinds and types of pipe, pumps, motors, sprinkler heads, and risers, "What changes would you make if you could do it over again?" Frequently mentioned by those who started with heavy pipe was a change to lightweight aluminum pipe. High on the list, also, were the use of main lines of sufficient size to avoid friction losses and the possibilities of having farm ponds for water supply. But let Arnold Ulrich of the Ulrich Fruit Farm, Rochester, Minn., tell his thinking on that score.

"I question whether we would drill a well again," he says. "I am convinced that we could have put a dam across a valley on our farm and stored millions of gallons of water from a 20-acre watershed area."

Ulrich has had 15 years of experience with overhead sprinkler irrigation. His present water supply is a 500-foot well capable of delivering 200 gallons per minute (g.p.m.). The pump is a Myers plunger type rated at 100 g.p.m. and powered with a 30 h.p. Wisconsin air-cooled engine. Ulrich is proud of this pump for it has yet to be pulled or repaired in any way.

He uses March overhead pipe together with aluminum pipe and sprinklers for 10 acres of strawberries and raspberries. Moulton jiffy-type couplers join the aluminum pipe on which risers, with Rainbird sprinkler heads, are spaced about every 50 feet.

Ulrich says were he to do it over again he would use all aluminum main and lateral lines because they are light and easily moved. "You don't need three men and a boy to move them, as you do with the old heavy steel pipe," he comments.

Rory Collins of Hood River, Ore., agrees with Ulrich about sprinkler irrigation. "There is no longer any argument about whether or not sprinkler systems pay here in our Hood River Valley," he says. "Sprinkler irrigation makes possible lush cover crop practices, does a bet-



Lush cover growth and no erosion are reported by grower Bostelle of Washington.

ter job with less water, and increases size, color, and quality of the fruit."

Collins, whose scientific neglect system of orchard management is world-famous, uses Stout irrigation equipment on portable aluminum pipe. To irrigate 20 acres, a four-inch supply line feeds three-inch laterals. A seven and one-half h.p. electric motor powers a Pacific pump that delivers 160 g.p.m., and runs 54 Rainbird sprinklers set 25 feet apart. Using the Stout Tractor Move system, Collins shifts 1,250 feet of aluminum line in just 30 minutes.

It is important in planning a sprinkler system, Collins believes, to have the pump located on the highest spot

in the middle of the acreage and to cut down friction loss by using pipe of adequate size in the main line and laterals. Water for Hood River Valley growers comes from Mt. Hood by gravity, and some growers, he reports, have been able to eliminate pumps by joining with neighbors in using a larger supply line from sufficient elevation to obtain the necessary pressure.

Abel de Rocher, who irrigates up to 80 acres of apples in his de Wiloughby Orchards at Belamont, Mich., also believes in main lines of sufficient diameter. "If I could do it over again, I would install a larger diameter main line, probably five-or



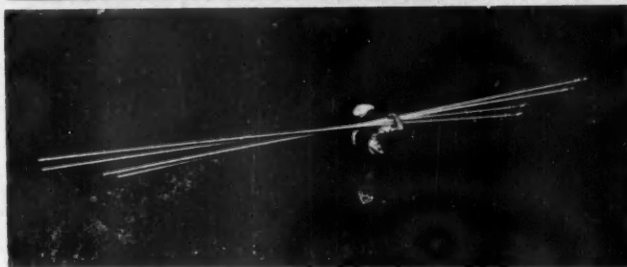
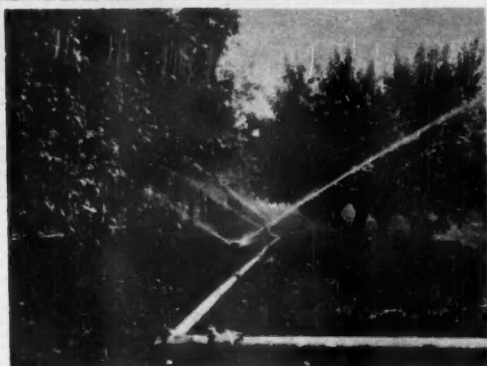


Above—Farm ponds for irrigation are proving their worth for many growers.

Left—Cut-off valves permit irrigating certain areas or moving sections of pipe.

Below, left—Increased production is reported by Mirassou Orchards and others.

Below, right—Walter Rawl of South Carolina uses small nozzles to advantage.



The big shift on fruit farms is toward lightweight but tough aluminum irrigation pipe.

six-inch," he says. "Also, I would have valves every 30 feet in the main line so that sprinkler lines could be moved one at a time while the pump is in operation."

De Rocher uses 3,000 feet of pipe with a 500 g.p.m. Hale pump powered by a Chrysler Industrial 85 h.p. en-

gine. He started with galvanized steel pipe but believes lightweight aluminum pipe would be better in the sprinkler lines which are shifted every five hours. As many as 36 Skinner and Buckner two-nozzle sprinklers are used, and each setting of the sprinkler line waters two rows.

De Rocher started irrigating in 1946 when faced with prospects of good apple prices and an unusually dry period. Rather than cultivate his well-established sod cover, he checked into costs of irrigating, made the installation, and has irrigated at least once each season since then. In 1946 when he irrigated continuously during the drought, he found irrigated blocks were producing larger fruit with better color and finish. De Rocher also believes that irrigation affects bud differentiation.

In South Carolina, Henry Gramling points out that a mistake frequently made in his section is to buy a pump of too little capacity, especially since many growers later want to expand and reach higher elevations. Differing from Arnold Ulrich, Gramling cautions growers on the use of farm ponds, pointing out that in dry weather they frequently are not ample and many times run dry. Gramling uses Reynolds pipe, Shur-Rain couplings, Skinner sprinklers, and Hale irrigation pumps to irrigate 150 acres. He has worked with three different

types of systems—perforated pipe, sprinklers, and volume guns which cover two to three acres at one time. "We have used the volume gun on peaches," he says, "and have seen crops which were saved or the value of a few acres go up thousands of dollars."

Other growers using systems similar to Gramling's with Reynolds pipe and Hale pumps are Gordon Floyd, Spartanburg; Arthur Rainey, Campobello; Guy Poore, Travelers Rest; and the Reverend W. J. Sprinkle, Chesnee, S.C.

(Continued on page 20)

SHOULD YOU PLAN FOR IRRIGATION EQUIPMENT SHORTAGES?



BEFORE undertaking anything these days involving war materials and essential metals, it is a pretty good idea to find out what the market situation is and what is available. Generally speaking, the National Production Authority (NPA) recognizes the need for tools and equipment for growers and has granted priorities which enable them to go into the market for what they need. On July 1 the Controlled Materials Plan (CMP) goes into effect and under priorities granted and the orderly disposition of available materials, fruit growers are quite definitely assured consideration of their needs.

Aluminum is a critical war material and is in much greater demand than the supply. Lightweight pipe more than anything else has made possible the many successful irrigation systems which mean so much for agriculture. It is important that a source for such pipe be found. The two largest producers of the material are the Aluminum Co. of America and the Reynolds Metals Co. When AMERICAN FRUIT GROWER interviewed the latter, Ray Christensen of

Reynolds Metals, Louisville, Ky., said, "Aluminum pipe is in limited supply — situation very fluid — one dealer may have it while another has none." The Aluminum Co. of America, Pittsburgh, Pa., looks at the supply situation as follows: "The National Production Authority in its order M-55A of May 11 has authorized a limited amount of aluminum irrigation pipe for irrigation systems for the third quarter of 1951," states R. B. Whidden. He continues: "It is doubtful that this amount will be adequate for the total demand. Nevertheless it should be encouraging to the irrigation industry that NPA has recognized irrigation pipe as being of sufficient importance to justify a DO rating in the face of the present substantial rearmament requirement."

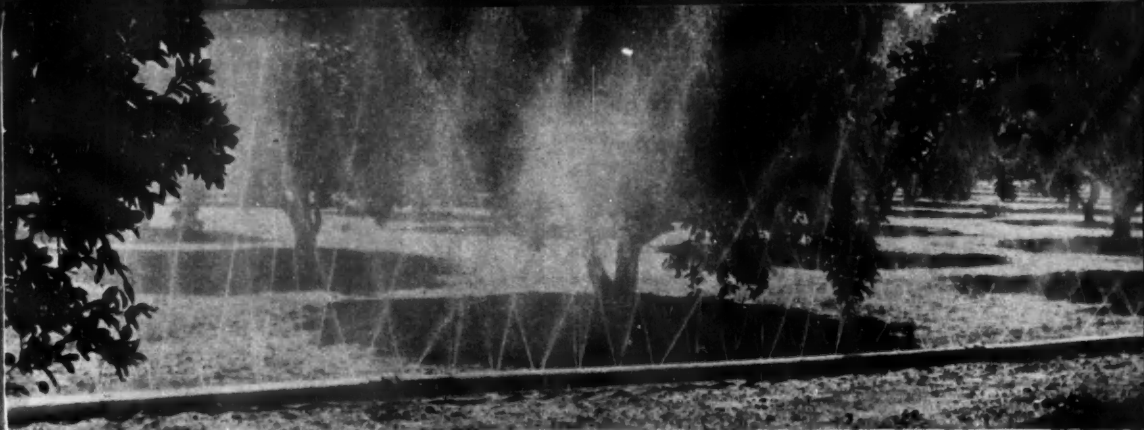
In addition to the pipe, aluminum castings are used extensively in irrigation systems. Jack Willobee, vice president of Michigan Orchard Supply Co., South Haven, Mich., says: "We find aluminum castings to be available in fairly good supply, but the extruded aluminum alloys are the ones which are short. Aluminum pipe seems to be the problem in the irriga-

tion industry, but we find it possible to use more lightweight portable steel pipe in main lines of six- and eight-inch diameters. These lines are moved once or twice a year while the sprinkler lines are moved hundreds of times."

There are other materials used extensively in a modern irrigation system which, like aluminum, are in short supply. Both copper and brass are under definite allocation, and their use and available stock are dependent upon priorities granted agriculture by the National Production Authority. In respect to these metals, H. M. Clark of Buckner Mfg. Co., Fresno, Calif., says: "We as a sprinkler manufacturer are controlled by copper order M-12 which at present holds us to 75 per cent of our normal production. We will make as many agricultural sprinkler units as possible from our quota, severely restricting our lawn-sprinkling equipment."

A. R. Friedmann of Skinner Irrigation Co., Troy, Ohio, offers the following: "So far as sprinklers are concerned, we are being limited in brass rod and brass castings, but we

(Continued on page 34)



FLORIDA TURNS TO SPRINKLER IRRIGATION

By A. T. RACE, Jr.

THERE are Florida growers living today who can tell many stories about their experiences of nearly a half century ago with supplemental irrigation. The early methods were crude and costly to install and operate. The end results, however, have always been the same. The grower who was able to put the proper amount of water on his farm or grove was rewarded with a larger crop of higher quality fruit.

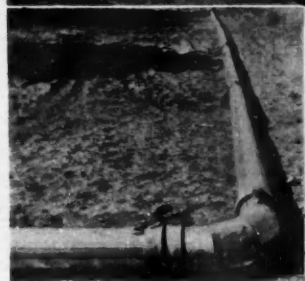
Growers have been convinced that supplemental sprinkler irrigation is important not only in dry seasons but for combatting what is often called "invisible drought". This occurs when seasonal rainfall, although normal in total inches, is spaced so that the tree or plant is deprived of its regular needed ration of water.

It was after World War I that citrus growers in Florida began to switch from flood irrigation to perforated or sprinkler irrigation. Slip joint pipe was in general use. During the 1930's lock joint pipe came into its own. As citrus acreages and production increased, pipe sizes also increased and a greater water flow at higher pressures had to be maintained to cover the acreages in a given length of time.

Slip joint pipe designed for flood irrigation at low pressure was drilled and coupled to larger pumps and motors. The frequent blowing of slip joint equipment brought on the development of lock joint equipment. Again, still larger acreages came into being in the late '30's and early '40's,

(Continued on page 23)

Tough aluminum alloy pipe, couplings, and other parts have opened new irrigation horizons for Florida citrus growers. In this story A. T. Race, Jr., president of Race & Race, Inc., pioneer Florida aluminum pipe company, tells why Florida growers are turning to portable sprinkler irrigation systems. With thousands of spring-fed lakes for water supply, Florida has made great strides in the economical application of water to fruit trees.—Ed.



Top—Perforated pipe is used to advantage in citrus grove of Julian Johnston.

Above, right—Unloading aluminum pipe from trailer hauled by Jeep. The special trailer is typical of the type used by growers to move pipe through groves.

Above, left—Diesel pumping unit setup of Waverly Growers Co-operative, Waverly, Fla., on shore of spring-fed lake.

Left—Eight-inch main line in place; pumping unit is mile and a half from 90° elbow.

Apple Drop Control
and Color Stimulation
Result from Promising

NEW HARVEST SPRAY

By M. B. HOFFMAN and L. J. EDGERTON
New York State Agricultural Experiment Station

THE USE of growth substances to control the harvest drop of apples was first suggested in 1939 by Gardner, Marth, and Batjer, research workers in the USDA. Their original experiments showed that α -naphthaleneacetic acid (NAA), its amide or salts at concentrations of five to 10 parts per million (p.p.m.) would effectively delay the abscission of maturing fruits. The following year commercial preparations containing NAA or its sodium salt were introduced for use as a harvest spray. During the past decade this treatment has been widely used in all apple growing areas.

Early experiences indicated that NAA had limitations on some varieties because of a short period of effectiveness. For example, in the case of McIntosh, the most important variety grown in northeastern sections, one application of the so-called standard concentration (10 p.p.m.) is effective for only six to nine days, depending on temperature and condition of trees. It requires two to four days after spraying for NAA to become effective. Consequently, to obtain maximum benefits from the treatment it has been necessary to time the application accurately so that the beginning of the period of effect would coincide with the start of drop.

Even with such precautions, when warm weather prevails, the effect of one application usually terminates suddenly and completely within about one week and the drop from trees not harvested by this time becomes heavy. To overcome this situation, growers often use double or triple concentrations (20 or 30 p.p.m.) and generally resort to two and sometimes three applications on McIntosh.

In some seasons naphthaleneacetic acid has not proved very satisfactory for drop control of later varieties such as Baldwin, Northern Spy, Golden Delicious, and Rome Beauty. This may be because of the increasing senescence of the foliage and lack of absorption of the chemical at the late date when the application would be made for these varieties.

Color-set 1004 is the name of the new harvest spray described by the authors and which will be marketed for the first time this year by the Dow Chemical Co. Great hope is held for the new hormone because of its color stimulating properties, but authors Hoffman and Edgerton caution against allowing fruit to become too ripe through a long picking period or while waiting for it to color up.—Ed.

Attempts are continually being made to find more effective or more adaptable compounds for drop control. It is now well established that 2,4-dichlorophenoxyacetic acid (2,4-D) has a much longer period of effectiveness than NAA in controlling the drop of Winesap, Stayman, and several minor varieties.

For best results on these two varieties 2,4-D should be applied earlier than NAA; but very early applications during August may result in a damaging holdover effect expressed as deformed leaves the following season. When proper precautions are taken with respect to time of application and concentration, 2,4-D is now regarded as the best hormone for drop control of Winesap and Stayman. Unfortunately, 2,4-D has proved ineffective on McIntosh, Delicious, and other leading commercial varieties.

A number of growth regulating chemicals, including certain of the chlorophenoxypropionic acids, were tested during the early spring and summer of 1949 on potted apple trees in greenhouses. Of those tested, 2,4,5-trichlorophenoxypropionic acid (TCPPA) was found very effective.

Following these greenhouse tests, TCPPA was included in an orchard experiment on the control of McIntosh drop during the 1949 harvest. This was an early season and the crop began to mature during late August. Because of the long period of effectiveness which TCPPA had shown in the tests, one group of trees was

Early McIntosh tree sprayed with TCPPA on August 10 and photographed August 31, at which time the hormone was giving complete control of drop while almost all fruits had fallen from unsprayed test tree.

sprayed with this material at a concentration of 20 p.p.m. on August 4 and another group received the same treatment on August 18. A third group of trees was sprayed with NAA at 20 p.p.m. on August 30 as the harvest drop was beginning, and a fourth group of unsprayed trees served as checks.

All of these experimental trees were harvested on September 11.

The weather was unseasonably hot throughout August and the first half of September. This warm weather together with the development of some unexpected boron deficiency symptoms was responsible for a heavy drop. The cumulative per cent drop for the 12-day preharvest period, August 31 to September 11, was as follows: Checks, 55 per cent; TCPPA applied August 4, 19 per cent; TCPPA applied August 18, 16 per cent; and NAA applied August 30, 25 per cent. At harvest both treatments of TCPPA were still giving as good drop control or better drop control than NAA although these treatments were made 26 and 12 days, respectively, ahead of the NAA treatment.

Experiments comparing the effectiveness of TCPPA and NAA for the control of harvest drop of McIntosh and several other varieties were conducted in 1950. In these tests concentrations of 10 and 20 p.p.m. of TCPPA were applied early and well in advance of drop. The NAA was

(Continued on page 26)





- Crop Prospects Are as Fickle as the Weather
- California Cling Peach Growers Negotiate Unusual Canner Contract

On May 1 the USDA estimated the 1951 peach crop for the 10 southern states at 17,699,000 bushels, almost three times last year's total. The estimate for Georgia and South Carolina was placed at 4,410,000 and 6,708,000 bushels, respectively. By mid-May the crops in Georgia and South Carolina had been materially reduced by hail and because of lack of normal set. National Peach Council's mid-May estimate for these two states was 3,500,000 and 4,750,000 bushels, respectively. NPC's mid-May estimate of the freestone peach crop for the entire U. S. was placed at about 28 million bushels. Last year's commercial freestone crop totaled almost 32 million bushels, and the 10-year average, 1939-48, was approximately 50 million bushels.

GEORGIA—The first peaches—the Mayflower variety—were shipped from Montezuma on May 11 and brought \$15 per bushel at Atlanta.

In early May two severe hailstorms about a week apart lashed across the South Georgia peach section. As with all such storms, losses were extremely variable. In the Middle Georgia peach section, the plum curculio population was apparently at its lowest point since 1945. If no disaster occurs in this section, the crop will be one of the best in quality in years.—*Earl F. Savage, Experiment.*

SOUTH CAROLINA—Peach growers are experiencing probably the heaviest May drop on record. The mid-February estimate of the state's peach crop was 5,500,000 bushels. At this date (May 14) we will be lucky to harvest 75 per cent of the above figure.

The heavily planted Piedmont was about two-thirds in bloom on March 12 when a period of low temperatures started and lasted until mid-April. Only the blossoms that had bloomed and had been properly fertilized prior to this cold spell set normal fruit.

The Elberta seems to be affected more seriously than other varieties and since it is so heavily planted in the Piedmont section of South Carolina there are few, if any, orchards that are expected to produce a near normal crop. Weather conditions were also wet and leaf curl has played havoc, again particularly with the Elberta.—*Roy J. Ferree, Sec'y, Clemson.*

CALIFORNIA—An unseasonal but welcome rain fell during the second week of May, giving the dry land orchards and vineyards a welcome boost. Ripe strawberries, however, were wrecked, and a light hail hit limited fruit sections, lightly marking some prunes and apricots.

The apricot crop is now estimated at about 170,000 tons, which is a little less than average for the past five years. Crop last year was 213,000 tons.

A preliminary forecast of the prune crop would be around 170,000 tons or just slightly below the last five-year average. It is estimated that since the first of the year

6,034 acres have been taken out of prunes, mostly in the Santa Clara Valley.

The clingstone peach crop is currently forecast at about the same as last year's crop of 472,000 tons. It looks like the freestone crop may be about 15 per cent under the 235,000 ton crop of last year.

Canners and processors are not talking price to the grower until they know a little more about the ceiling prices of processed fruit.

CLING PEACH GROWER CANNER CONTRACT: Cling peach growers represented by the California Canning Peach Association have negotiated a rather unusual contract with California canners.

The growers' association will market the peaches for their members. Most peaches will be thrown into a supply pool and canners will sign an agreement covering three, four, or five years in which they agree to take a certain basic minimum supply from the pool.

This agreement assures the grower of a

market and the canner of a supply. Price (insofar as possible in view of ceilings) will be set each year. The association will examine the economic and supply factors affecting both the fresh and finished product in the can. When a price has been accepted by one-third of the canners with whom the association has contracts and whose aggregate purchases represent one-third of the total association volume, then that price will govern the entire crop. If the canners refuse the price it will be withdrawn and a new price submitted.

A reserve pool of peaches will be held and from this the canners can draw to fill out their total requirements. The only catch in this arrangement is that the grower will have the say-so as to which canners can draw out of this reserve pool. This means that those canners with the best public relations with the grower will get the reserve peaches.

While the pool idea should benefit both

(Continued on page 32)

FRUIT PEST HANDBOOK

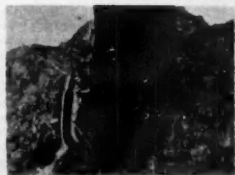
(FOURTH OF A SERIES)

ROUNDHEADED APPLE TREE BORER

THE roundheaded apple tree borer attacks apples, pears, and quince in the United States and Canada from the Dakotas and Texas eastward, and has been found also in New Mexico and British Columbia. Attacking principally young trees under 10 years of age, the borer feeds on the inner bark or sapwood and makes burrows in the trunk from one or two inches below ground surface to a foot or more above ground. To make a thorough examination, remove earth about the trunk to a depth of two or three inches and look for darkened areas in the bark and for coils or piles of sawdust-like material adhering to the bark or on the ground.

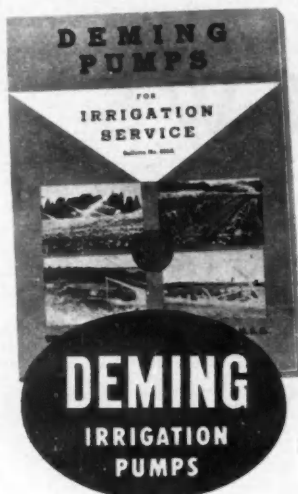
If borers are present they may be recognized by their creamy-yellow color and brown head. There is a rounded thickening of the

(Continued on page 37)



Above—Adult roundheaded apple tree borer. Below—Larva (left) and pupa. Enlarged.

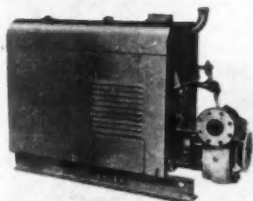




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WASHINGTON FRUIT LETTER

- Duty-Free Period Extended on U. S. Apples to Canada
- Labor Opposed to Importing Foreign Help

By LARSTON D. FARRAR

Washington Correspondent, American Fruit Grower

THE only important concession American representatives were able to obtain at the so-called reciprocal trade conferences held in Torquay, England, was the increase in the duty-free period (in which apples may be sent from the U. S. into Canada without paying any tariff), from July 12 to July 31—some 19 days.

Also, the normal duty on apples shipped from the U. S. to Canada was cut in half—from three-fourths cent to three-eighths cent a pound. This covers fresh apples only.

ALTHOUGH the Senate has passed a bill allowing the importation of Mexican workers, and the House Committee on Agriculture is holding hearings on the same legislation, it is recognized here that fruit growers must formulate their basic answers to the manpower shortages without too much hope of foreign labor.

The debate in the Senate over the importation of Mexican workers (the only nationality included in the bill) brought out strong labor opposition to bringing in any new workers.

THE SPECIAL committee headed by headline-hunting Representative James J. Delaney (D.-N.Y.), who seems to want to dig up some startling opinions about the dangers of using pesticides, continues to hold hearings.

The only witness in recent weeks to get any press notice was Louis Bromfield, the noted Ohio farmer-author, who voiced his belief that the insect poisons used on fruits and vegetables probably are a big factor in the prevalence of heart disease.

Representative Walt Horan (R.-Wash.), the Wenatchee apple grower who is on the special committee now, has endeavored to inject a more impartial atmosphere into these hearings. A star witness—not mentioned in any newspapers—was Dr. George Decker, head of the economic entomology section of the Illinois State Natural History Survey, University of Illinois, Urbana, who stated unequivocally that the use of pesticides was an economic necessity.

OFFICE of Price Stabilization, having gotten away with its rigid ceilings on beef, now is turning its eyes toward the fresh fruit and vegetable industry.

The National Apple Institute, in conjunction with state horticultural societies, has requested that OPS appoint an advisory group on deciduous fruits, apparently in expectation that some kind of price controls are inevitable. Yet, as Truman Nold, NAI executive secretary, has pointed out, such a group conceivably could make a strong case against any controls and may stave them off, if anything could.

Heretofore, only the service fees charged by brokers, warehouses, etc., handling fresh fruits and vegetables, have been under price ceilings. These were removed when it became apparent that the controls would not work as long as fresh fruits and vegetables were not under ceilings, too.

During World War II, when there were ceiling prices on apples and other fruits and vegetables at retail levels but not on producers and other distributors, a general upset developed, as the law of supply and demand could not work. Apples backed up because the ceilings were treated as floors by retailers.

This time, if ceilings are imposed, there is little doubt but that they will affect all levels of distribution, from grower through to retailer.

CALIFORNIA grape growers heaved a sigh of relief at the rather modest excise taxes on wines reported out by the House Committee on Ways and Means. The amounts represent only fractions of the sums demanded by the Secretary of the Treasury.

SECRETARY of Agriculture Charles F. Brannan has become quite a champion of the farmer's needs and wants before Congress and in other parts of the government.

The secretary won a victory by getting full-time farm workers of all ages an exemption from the workings of the draft (details are available at any local draft board). He also has been putting in strong pleas for agriculture before the National Production Authority, which is to administer the Controlled Materials Plan beginning July 1, and it is likely that farm machinery production will not suffer as much as was believed awhile ago.

The secretary also has been extremely active in both NPA and OPA, trying to increase the supply of boxes, burlap bags, etc.

AMERICAN FRUIT GROWER

THE QUESTION BOX

When should zinc be included in a fertilizer program?—Washington

Zinc is needed when the trees show little leaf or rosette. You can recognize this condition by small narrow leaves that show a striped chlorotic pattern with green veins; by rosetted or small leaves appearing on one or two-year-old wood, with normal terminal growth; by small rosettes of leaves at the tip with extra small leaves or no leaves behind the tip; or by dieback following these symptoms. Soil applications of zinc are not effective. In the state of Washington, a late dormant spray of 15 to 25 pounds of zinc sulfate per 100 gallons corrects little leaf. Zinc deficiency has not been widely reported except in certain areas of the Pacific Coast.

Can you describe the treatment of plants with colchicine to obtain bud variation?—Essex

To obtain bud variation with colchicine, it is best to treat tips of rapidly growing shoots. The more rapid the growth, the more effective is the colchicine. Treatment may be made by wetting the short tips thoroughly, once or several times, with the colchicine solution with the aid of a medicine dropper; or by immersing the growing tips in a vessel containing a colchicine solution for a few to several hours. A mixture of 0.5 per cent to 1.0 per cent colchicine in lanolin may be smeared on the growing shoots. Colchicine is poisonous and should be used with caution.

How late can you spray peaches in the spring for peach leaf curl?—Connecticut

Sprays must be put on before any sign of growth shows. The tree must be completely dormant. The peach leaf curl spore lies in the little cracks of the scale and as soon as there is the slightest bit of growth the spore moves under the scale and then you can't get it. If you spray before the bud swells you might get some control, but you won't get complete control if the bud has swelled at all.

Is fruit in consumer packages preferred to fruit in bulk packages?—Oregon

Mrs. Housewife can supply the best answer to this question. A poll taken by the Pennsylvania State College Research Department showed the following:

1. Do consumers want prepackaged or bulk produce?

Ready packaged	38.5 per cent
Bulk	39.1 per cent
Varied between items	19.2 per cent
No preference	4.2 per cent

2. What do customers think of quality between prepackaged and bulk produce?

About equal	49.3 per cent
Ready packaged better	18.2 per cent
Bulk better	21.3 per cent
Varies between items	9.2 per cent
Unknown	2.0 per cent

3. How do shoppers rate prices of prepackaged and bulk produce?

About same	67.3 per cent
Ready packaged higher	21.0 per cent
Bulk prices higher	2.5 per cent
Varies between items	4.4 per cent
Unknown	4.8 per cent

4. Do shoppers consider prepackaged produce a better buy?

About the same	36.7 per cent
Ready packaged better	18.9 per cent
Bulk better buy	28.4 per cent
Varies between items	13.0 per cent
Unknown	3.0 per cent

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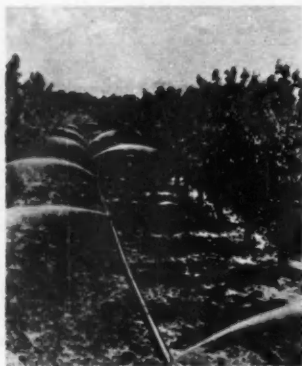
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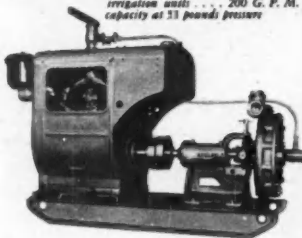
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BERRIES

(Continued from page 9)

depth of three feet or more. If the effective root depth is two feet, it is apparent that on a sandy loam soil this crop will continue to make satisfactory growth for two weeks or more before the rate of growth is reduced from lack of water. If the planting were located on a silt loam soil, it would make satisfactory growth for three weeks or more before additional water would be needed.

It is necessary to know how much rain occurs in order to know how much irrigation water should be applied. A standard rain gauge or a straight-sided vessel or tin can may be used to collect rainfall. Careful measurement of the rain water collected in such a gauge, plus an examination of the soil in the field, will show when the irrigation should be started.

For shallow rooted crops such as strawberries, at least one-half to one inch of water per acre should be applied at each application. For deeper rooted crops like raspberries, one to two inches may be applied. Excessive applications should be avoided on light soils because much of the water may be lost by drainage.

No benefit will be secured from a light sprinkle which wets only the surface of the soil. Such a light application will stimulate plant growth for only about a day and may do more harm than good.

Many readers may raise the question, "Will not capillary movement of water in the soil supply some of the plant's needs?" Some years ago it was thought that such movement was quite important in supplying water to the roots of plants. It is now known that capillary movement is very limited in extent and the rate is so slow that it has little or no real value as far as the plant is concerned. In most soils the effective range of capillary movement is less than one inch.

Methods of Applying Water

The sprinkler method of irrigation is probably the most desirable system to follow. This method is especially adapted to land having an irregular surface and is rapidly replacing the furrow system even on gently sloping sites. The sprinkler method gives better utilization of water than the furrow method. This is an important consideration if the water supply is of limited capacity.

The extension agricultural engineers at the state colleges will gladly give growers advice on laying out an irrigation system. Expert advice of

Here's how to keep Red Mites



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this type should be obtained because many problems must be solved if the operation is to be successful.

Portable sprinkler systems using lightweight tubing and quick-action couplings are desirable if the planting is to be rotated from one field to another over a period of years. Such portable equipment is also an advantage in that it can be moved from field to field during the same season and thus reduce the cost of the installation. If the berries are to be rotated with vegetables, a permanent overhead system may be the most satisfactory.

The use of canvas hose of the "ooze" or "eyelet" type may be satisfactory in a small home planting but is usually undesirable for a commercial acreage. The canvas hose is difficult to move when wet and rapidly deteriorates with age.

Rate of Applying Water

The water should not be applied faster than the soil can absorb it. If puddles collect on the surface of the soil the water will start to flow and cause erosion just as in the case of a heavy rainstorm.

On sandy soils the water can be applied at the rate of up to two inches per hour with little or no difficulty. On sandy loam and silt loam soils the rate should be reduced to one-fourth to one-half inch per hour.

An acre-inch of water is 27,150 gallons. Therefore, a 450-gallon per minute pump can apply in one hour one acre-inch of water. Sufficient sprinkler heads should be installed to have the rate of application slow enough to prevent an accumulation of water on the surface of the soil.

Costs of Irrigation

Only very general information can be given regarding the cost of supplemental irrigation. Installation costs have been reported which vary from \$50 to \$150 per acre. The actual cost depends on the number of acres involved, the nearness of the water supply, and the height to which the water must be pumped. Each installation must be figured separately, which emphasizes the importance of consulting a qualified agricultural engineer before the equipment is purchased.

Operating costs vary as do the expenses of installation. A cost of \$10 to \$15 per acre per year for maintenance and operation will usually cover all items of expense.

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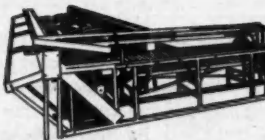
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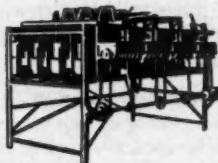
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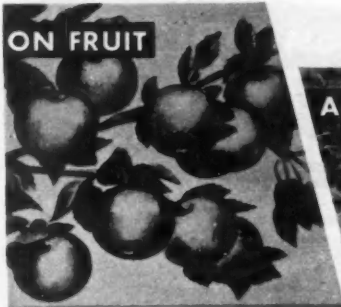
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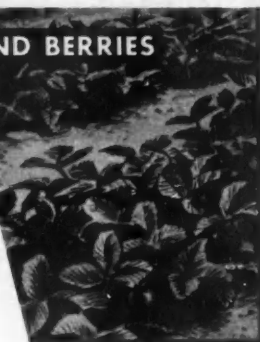
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SPRINKLER EXPERIENCE

(Continued from page 11)

Mirassou uses 3,500 feet of four-inch Alcoa aluminum pipe, Shur-Rain couplers, and Rainbird sprinklers. He also has 14,000 feet of eight-inch steel underground main line through which water is supplied from a 400-foot well. Mirassou irrigates 350 acres with 350 g.p.m. from his well and believes he could do this only through the use of sprinklers. "We have actually increased production," he says.

One of the irrigation problems Cecil Clark of Wapato, Wash., found difficult to overcome was getting water on odd-shaped areas. To overcome this, he devised a system of three sprinklers on a hose to cut down labor in moving portable pipe into these "out of line" places. Using Calco, Stout, and Wade Rain systems, Clark has installed sprinklers on over 400 acres.

Clark favors self-priming pumps and says the only trouble he has experienced is an occasional power failure. To avoid trouble with trash clogging the sprinkler line, large multiple screen boxes are used; and for growers with a silt problem, Clark advises installing settling boxes sufficiently large to reduce the movement of water to six feet per minute.

Insect Population Decreased

Most of his sprinklers are L. A. 20 type Rainbirds, but one installation is of L. A. 40's on tripods, overhead type. Clark reports that wind is bothersome with this overhead type, but that the overhead system is good for trees and reduces pests, particularly mites.

George P. Sisler of Wenatchee, Wash., also uses overhead sprinklers on 65 acres of bearing apple trees and 40 acres of young pears and apples. He believes the overhead sprinklers have reduced his spraying costs because they have made possible the elimination of sprays for mite control. "This saving has paid for our overhead sprinklers," says Sisler. He attributes the mite suppressing effect to the fact that he irrigates at 10-day intervals and doubts that this would hold true where water is applied at two or three-week intervals.

Sisler pumps water directly from the Columbia River and has two 15 h.p. booster pumps to lift the water the necessary 160 feet. The main pump is powered by a 75 h.p. electric motor and throws 1,100 g.p.m. at a 160-foot head. The main sprinkler lines are of steel with Alcoa aluminum laterals. The high risers are fastened at the base with Williams quick-couplers which fasten or unfasten

AMERICAN FRUIT GROWER

with a quarter turn. The sprinkler heads are of the Buckner and Rain-bird types, and most of the pipe is equipped with Stout couplers. Armco couplers are also used which Sisler says are especially good for the low sprinklers he has on 10 acres of bearing apple trees, as the line stands up well without support.

One change Sisler made was to shorten some of the sprinkler laterals. He says: "I believe a line 300 feet long of two-inch pipe is about the right length. Such a line can be moved without using a tractor and trailer. Furthermore, a longer line requires too much walking."

Erosion Controlled

Another Washington grower, George Boutelle of Kennewick, is enthusiastic about sprinkling and mentions, as advantages over rill irrigation, more uniform coverage, no run-off, absolute erosion control, and savings in water. He says: "Our orchard is on hillside land. We could not get a good cover crop with furrow irrigation and were having trouble wetting the centers between the furrows; at the same time we were losing valuable topsoil. Sprinkler irrigation changed all this, for by screening the water we seldom have any clogging of sprinkler heads, and there is never any question whether all rows are watered evenly." Boutelle uses Ideal sprinkler heads, working from a 180 g.p.m. Pacific pump with a three h.p. motor.

J. H. Heisey of the Heisey Orchards at Greencastle, Pa., uses perforated pipe, manufactured by the W. R. Ames Co., to irrigate 80 acres of apples. The grove and orchard type of perforated pipe, which gives a 20-foot spread each way from the pipe, requires only 20 pounds pressure on the line, says Heisey, and is easy to handle. Water is supplied by a 1,000 g.p.m. pump through an eight-inch underground main line.

Heisey says, "Our production and quality have shown definite increase since we have been irrigating, despite the fact that we have not had a severe drought in the last five years."

Provide for Half Your Planting

Be sure of your water supply is the best advice given by Bernard Mumma of the Mumma Fruit Farms at Dayton, Ohio. Mumma says it is a good idea to check your supply at the driest time of the year. "Furthermore," he says, "purchase large enough pipe when you start buying because you are always going to add to your system. The loss in friction more than pays for the difference in cost. Also, buy enough pipe so you can lay your

(Continued on page 22)

Mumma Fruit Farms USE **FLEX-O-SEAL** PORTABLE IRRIGATION PIPE **EXCLUSIVELY**

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SPRINKLER EXPERIENCE

(Continued from page 21)

laterals to cover 50 per cent of your planting at one time. This will eliminate a lot of moving and damage caused by carrying the pipe over wet ground or tramping down young plants, berries, etc."

Mumma uses electric power with one 150 h.p. motor on a 1,300 g.p.m. pump and one 15 h.p. motor with a 450 g.p.m. pump. "The electric power is more costly," says Mumma, "but for convenience I believe it pays."

Mumma uses Flex-o-seal pipe to irrigate 250 acres.

Another grower who wishes he had started with lightweight aluminum rather than the heavier steel pipe is Donald Piper of Bangor, Mich. Piper changed to Alcoa aluminum for easier handling when it became available. Regarding the pump motor, Piper says, "Be sure to get one large enough and with a good surplus of power. Also, be sure, if you purchase a gasoline or Diesel motor, to install a safety switch for over-heating and low oil pressure."

Piper continues to add pipe to his

system as he irrigates farther from the pump. He is now installing five-inch main lines and four-inch laterals. Two years ago he replaced the old pump with a new Fairbanks-Morse and now pumps 600 g.p.m.

Piper has found that his sprinkler system gives him excellent frost control on strawberries, protecting down to as low as 22°. "We set our lines 70 feet apart," he says, "and the sprinklers are staggered 60 feet in the line. We use Buckner single-head sprinklers with a three-sixteenths-inch tip and approximately five g.p.m. discharge. The pump is started when the frost starts to lay in the field at about 34°, and is kept running until the ice is gone next morning."

Piper is well satisfied with his irrigation system. "It has paid for itself as we went along," he reports. Piper uses the Bouyoucos meter and plaster of Paris block to tell when to irrigate and how much.

Walter Rawl of Gilbert, S. C., agrees with Piper about shifting to aluminum pipe. Rawl has 4,500 feet of six-inch underground pipe which he would change to six-inch aluminum pipe if he could do it over again. Rawl likes fresh water ponds and has completed four farm ponds within the past four years and will have another completed for this season's use. These ponds range in size from 1.3 acres to seven acres, and eight and one-half to 13½ feet in depth. Rawl uses small nozzles to get water under his peach trees and has two pumps, each delivering 500 g.p.m.

West Likes "Controlled" Irrigation

Western growers, too, have found sprinklers, in many cases, to be superior to rill irrigation. In Colorado, Prescott W. Eames of Grand Valley provides a fitting ending to this story with his experiences.

"This is my fifth season with sprinkler irrigation, and my one regret is that it is not my 25th year. I have washed away enough topsoil, lost enough water, and wasted enough fertilizer, to have paid for a sprinkler system several times over.

"We started with a small pumping outfit to irrigate 12 acres of cherry orchard. Now we have 72 acres under sprinkler irrigation. We utilize gravity pressure with a steel main line.

"We have found Rainbird sprinklers the most satisfactory of the three kinds we have tried. The portable aluminum pipe and self-draining couplers are entirely satisfactory."

He concludes, "There is no other method of irrigation that permits anything like the control that one gets with sprinklers, and certain control is one of the most essential factors of any method of irrigation."

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FLORIDA IRRIGATION

(Continued from page 13)

which demanded even larger pumps, motors, and pipe to cover these acreages in a given length of time.

It was during the World War II years that Florida growers, not unlike most growers at that time, were experiencing a manpower shortage. This situation plus a shortage of galvanized steel pipe, made a perfect setting for aluminum to enter the irrigation picture. Enough aluminum pipe was sold the first year to prove its worth, from the standpoint of strength as well as cost.

Operating Costs Cut in Half

Many growers with large acreages after the first year's use of aluminum pipe claimed savings of at least 50 per cent in operating costs and growers with smaller installations of 10 acres or less claimed as high as 75 per cent. In the case of the latter the use of aluminum pipe eliminated the necessity for hiring two or more men previously required to irrigate a grove. The average savings in manpower where aluminum systems are used are about 50 per cent.

Florida soils vary from very porous sandy soil to clay. The rate of absorption without wash will vary from six or eight inches of water per hour down to one-quarter inch per hour. Because of these varying soil conditions, many types of irrigation methods are practiced. Areas situated at a lower level than adjacent water still use the flood method, which is the cheapest possible way to handle water. As our water table falls this practice may be curtailed for it is a known fact that to accomplish the same results approximately 100 per cent more water is required for flood irrigation than for sprinkler irrigation.

Systems in Use

The two most popular irrigation systems in use are the perforated pipe and the rotary head. Citrus growers use perforated pipe extensively. Some growers producing such crops as strawberries use perforated pipe with tiny holes which cause a light fall of water simulating a very fine rainfall. Some citrus growers use giant rotary heads, to simulate a young cloudburst.

Perforated pipe usually is made with two holes drilled every 12 inches and the distance between the holes varying on three pairs of pipe and then repeating. The size of the holes varies from one-sixteenth to three-sixteenths inch in diameter depending on volume and coverage desired. Rotary heads are designed to meet almost any given

(Continued on page 24)

JUNE, 1951



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FLORIDA IRRIGATION

(Continued from page 23)

condition, depending upon the requirements of the grower.

A sprinkler known as a sprinkler gate is used by many citrus growers. The gate is adjustable from being fully closed to wide open. At 20 pounds pressure a fan-type spray results, covering a diameter of approximately 45 feet with 25 gallons per minute from each head or 20-foot length of pipe. The volume can be controlled, depending upon pressure and gate setting, to give practically any desired gallonage over a given area.

Water for most of Florida's irrigation systems is pumped from thousands of spring-fed lakes, rivers, and streams. Since 1945 the proportion of deep wells being drilled that require turbine pump installations has increased; but centrifugal pumps directly connected far outnumber turbine installations.

Portable Systems Favored

Complete portable irrigation systems of high pressure, high volume capacities are gaining in favor over permanently installed plants. Aluminum irrigation equipment to withstand these higher pressures has been designed. Since a manufacturer cannot determine for what purpose a certain piece of pipe will be used as it goes down the production line, all pipe manufactured today must be capable of handling high pressures. Many growers add to their existing equipment each year as additional acreage comes into bearing or is acquired. Six-inch mains today probably will become sprinkler lines within a few years or will be required to carry higher volumes of water, resulting in much higher pressures.

Several years ago, prior to aluminum entering the irrigation field, operating pressures exceeding 60 or 70 pounds were unheard of for irrigation. Today, thanks to strong heat-treated aluminum alloys, pressures resulting from long mains are no particular problem. Six-inch aluminum mains are being manufactured which will operate successfully at well over 500 pounds pressure per square inch. Actually, no irrigation system will be operated in the foreseeable future at such pressures. However, such strength will take care of a lot of trouble caused by water hammers in long line installations.

Proper Alloy Is Important

Practically every part of an irrigation system, with the exception of the pump and motor, is today being constructed of aluminum alloys. Ease of

handling demanded these changes. Foot valves, butterfly valves, tees, elbows, and the big rotary guns are now principally constructed of aluminum.

The proper alloy in the proper place makes for a long-lasting, serviceable piece of equipment. Certain metals and aluminum do not get along too well. Certain alloys of aluminum, too, do not get along well by themselves. Certain methods of construction of even good aluminum may result in a product not up to standard. To make sure that the irrigation system you plan to install is made from the proper alloys, consult your local dealer and if he is reluctant to make recommendations, ask for specifications on aluminum alloys. Aluminum is comparatively new to the irrigation field and some growers may not know the importance of using the proper alloy. Your nearest aluminum representative can guide you in a proper selection.

Florida has installed many millions of feet of aluminum since 1946. Today, about 50 per cent of the groves and farms are irrigated. Of this acreage, nearly 50 per cent is irrigated with aluminum systems. In five short years, Florida growers have purchased almost as many feet of aluminum systems as are in operation in competitive equipment still in existence. Replacements of old systems are predominantly going to aluminum.

It is difficult to include here costs of irrigation equipment. The grower should deal with a reliable dealer who is acquainted with his problem or is willing to learn it before making a recommendation. A good installation that will serve you well will be the result of careful study.

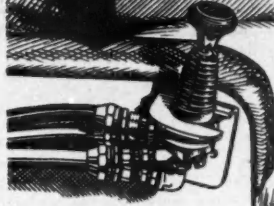
Make Known Your Requirements

Today, all metals are in short supply. Your irrigation dealer can still get top-quality products designed to meet your specific needs; but those of you who are planning irrigation in the near future should make known your requirements a little prior to the day the equipment is needed. Several months notice is required by the manufacturer to secure certain parts of an irrigation system. If such a part comes into immediate demand because of a drought in a given area, substitutes will have to be made for short notice delivery.

Irrigation is here to stay. One of these days portable mains will be supplied in 10- and 12-inch sizes of extruded light-wall, high-strength, aluminum alloys, capable of handling several thousand gallons per minute. Cost per acre inch of water applied undoubtedly will be reduced substantially with such large installations, and another milestone will have been reached.

JUNE, 1951

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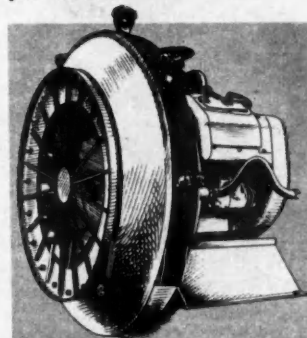
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HARVEST SPRAY

(Continued from page 14)

used at 20 p.p.m. and timed to coincide as near as possible with the beginning of drop. The results of one of these experiments are given in the accompanying table.

In contrast to the previous year, 1950 was a late season. The NAA was applied on September 16. Relatively cool weather prevailed throughout the period of drop records. However, the check trees showed a rather constant rate of drop, reaching 23.6 per cent on September 29 when the trees in all treatments were harvested.

The weaker concentration, 10 p.p.m., of TCPPA applied September 1 or four weeks before harvest reduced drop to 12.3 per cent. The stronger concentration, 20 p.p.m., applied September 1 reduced drop to 3.3 per cent.

varieties not listed above. In other words, it does not seem to be specific for only a few varieties as is 2,4-D. Certainly it has a much longer period of effectiveness on McIntosh and some other varieties than does NAA. This means more leeway in timing the application and less concern about a sudden run-out or loss of effect.

Limited experience indicates that TCPPA may require several days longer to take effect than does NAA. However, if reasonable time limits are exercised in making the application there should be no necessity for a duplicate spray.

In commercial practice an application made about seven to nine days before the beginning of drop should allow sufficient time for the treatment to become effective, and such a procedure should give protection against drop for three to four weeks. When convenience or the saving of time are

Effect of TCPPA and NAA on the Harvest Drop of McIntosh Apples.* 1950

Treat.	Conc. PPM	Date Applied	Cumulative Per Cent Drop											
			9/17	9/18	9/19	9/21	9/22	9/23	9/25	9/27	9/28	9/29		
Check			1.5	3.2	5.2	8.2	10.6	12.2	14.0	18.6	21.2	23.6		
TCPPA	10	9/1	0.1	0.4	1.0	2.0	3.1	4.7	6.0	8.0	10.1	12.3		
TCPPA	20	9/1	0.1	0.1	0.2	0.5	0.7	1.0	1.4	1.8	2.4	3.3		
TCPPA	10	9/8	0.2	0.4	0.8	1.3	1.8	2.5	3.0	4.1	5.3	6.8		
TCPPA	20	9/8	0.1	0.2	0.3	0.5	0.6	0.7	1.0	1.3	1.7	2.2		
NAA	20	9/16	1.4	2.7	4.2	5.0	5.3	5.6	5.9	6.1	6.6	7.3		
L.S.D at 5% Point													4.99	
Daily Temp.			Max.		66	68	68	72	54	62	56	62	60	63
°F.			Min.		32	32	46	50	48	40	32	42	42	46

*Eight trees per treatment. Average 35 bushels per tree.

A concentration of 10 p.p.m. of TCPPA applied September 8, or three weeks before harvest, was just as effective in drop control as 20 p.p.m. of NAA applied September 16, or two weeks before harvest, the final drop being 6.8 and 7.3 per cent, respectively. The TCPPA treatment at 20 p.p.m. concentration applied September 8 held drop to 2.2 per cent. Probably because of the inception of cool weather just before NAA was applied, this treatment required about five days to reach its peak of effectiveness.

Varietal Adaptability

While the work in New York State with TCPPA for drop control has been concerned mainly with the McIntosh variety, limited tests indicate that it is equally effective on Early McIntosh, Milton, Wealthy, Delicious, Fameuse, Baldwin, Golden Delicious, and Northern Spy. In a commercial trial on Delicious where 10 acres of trees were sprayed by the grower four weeks before harvest, TCPPA at both 10 and 20 p.p.m. gave excellent control of drop. Unsprayed trees in this orchard averaged 4.5 bushels of drop fruit per tree, or about 22 per cent of the crop.

According to reports from other areas, TCPPA has proved to be effective on several other commercial

important considerations, several varieties such as McIntosh, Baldwin, and Delicious, which mature relatively close together, might receive the treatment at the same time. For later sorts, such as Northern Spy and Rome, the long period of effectiveness of TCPPA would make it possible to apply the treatment before the foliage began to lose its ability for absorption from frost or other factors which bring about senescence.

Effects on Color and Maturity

In a number of experiments the TCPPA spray stimulated and increased the amount of red color. This was especially striking on Early McIntosh and Wealthy in 1950 when the hormone was applied two weeks before harvest. Relatively cool weather following the application may have been partly responsible for the excellent color obtained.

However, a similar effect was noted on McIntosh in the 1949 experiment when the weather was very warm. The daily maximum temperatures during the 38-day interval from spraying to harvest, August 4 to September 11, ranged from 66° to 98° F., with a daily average of 82° F. Because of this long period of continuous hot weather, the color of all fruit on the check trees at harvesttime

was unsatisfactory, while over 75 per cent of that from sprayed trees was fancy.

Northern Spy has responded to this treatment with increased color. Limited experience indicates that the yellow color of Golden Delicious, which is often slow in developing during a short growing season, will be improved by the spray.

In order to obtain this effect on color it may be necessary to apply the spray at least two weeks in advance of harvest. There may be little or no effect on color when trees are carrying an excessive set and the fruit is small in size. The most pronounced effects on color have occurred where the trees were well thinned or the normal set resulted in an adequate leaf-fruit ratio for good size and quality.

The development of red color and the change in under color from green to yellow is closely associated with the ripening processes. As is the case with naphthaleneacetic acid, TCPA seems to exert some direct stimulatory effect on the rate of ripening. With summer apples and other varieties, including McIntosh, maturing during hot weather, hormone sprays which are effective in drop control will often reduce the firmness of the flesh as measured by the pressure test.

As yet, there is no evidence to indicate that an application of TCPA will result in a greater direct stimulation of the ripening processes than some of the NAA programs now being used. On the other hand, in spite of the present use of NAA, a 25 to 30 per cent drop of mature fruit often occurs in some of the larger McIntosh plantings during the latter part of the harvest. This automatically protects the pack against a certain amount of ripe fruit.

A hormone that will control drop throughout a long harvest would naturally result in the picking of an increasing amount of ripe fruit as the end of harvest approached. In such cases the last fruit to be picked might be marketed first while it is in prime condition for early consumption.

The formulation of TCPA used experimentally during the past two seasons was distributed under the code number A-1004. This designation has been changed to "Color-Set 1004." Growers who may decide to try this chemical for drop control during the present season should remember that, like any other hormone, a good, healthy foliage and thorough coverage are necessary for absorption and maximum effects. If the perfect hormone for drop control is ever developed, it will still be necessary to remove the fruit from the trees before it becomes over-mature, else poor keeping quality will result.

JUNE, 1951

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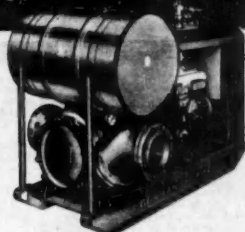
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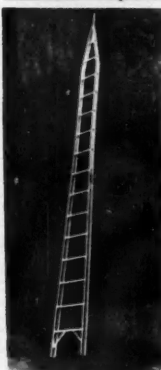
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THE ORCHARD HOME

Homekeeping hearts are the happiest.
—Longfellow

A poem, recipes and experience stories are offered our lady orchardists this month by readers from different parts of the country.

Mrs. Frank Fortman, Dyersville, Iowa, sends along her experience with growing berries.

GROWING BERRIES

My experience has shown that we can have the most delicious food in the world by having our own berry patches. There is nothing like blueberries for tasty pies and sauces. We plant three varieties for a long fruiting season: The Rancocas for an early variety; the Stanley, a midseason variety; and the Jersey, a late variety, of excellent flavor. In this way we have blueberry muffins throughout the season.

For strawberries, we find the Senator Dunlap the best of all, season after season. This variety will give us more dishes of berries and more crates than any other kind. We find also, that the Dunlap withstands cold and late frosts.

Mrs. Elizabeth Randolph, Tulare, Calif., offers her recipe for fruit jam. She uses any berries which are in season, and adds that the recipe is excellent in that it preserves all the good fruit flavor.

BERRY JAM

Wash and mash berries. Cook, until the berries will go through a sieve, to take out the seeds. Do not add any water. To each 2 cups juice and pulp, add 3 cups sugar. Place on the stove and let come to the boiling point, but do not boil. Seal.

A recipe for blueberry cake is offered our lady orchardists from Mrs. Emil Lancour, Escanaba, Mich.

BLUEBERRY CAKE

- 3/4 cup margarine or butter, softened
- 1 1/2 cups sugar
- 2 egg whites, unbeaten
- 1 1/2 cups milk
- 2 1/2 cups flour
- 3 teaspoons baking powder
- 1 1/2 teaspoons vanilla
- 1/4 teaspoon salt
- 1 1/2 cups blueberries (or substitute chopped peaches, strawberries, raspberries, cherries, or cooked prunes)
- 1 1/2 cups whipping cream (or less)

Put all ingredients, except fruit and whipping cream, in a bowl and beat well until smooth. Fold in the blueberries, after they have been washed and dried lightly with a towel. Bake in a large square cake pan at 350° F. for one-half hour. Spread with whipped cream.

This summer many of you will be planning to freeze your fruits and vegetables. Mrs. Anna Shoemaker, Hammonton, N. J., relates her experiences with freezing strawberries.

FREEZING STRAWBERRIES

It is now possible for us to have fruit and vegetables the year round. I know that freezing does not change the quality of the product, and it is imperative that

AMERICAN FRUIT GROWER

only the best fruits and vegetables be frozen.

I have found that strawberries must be fully ripe for a good frozen product. Soft, overripe, or green berries are not good for freezing. My experience has shown that sugar is a "must" with strawberries. It not only sweetens them, but it preserves their color and flavor. I slice the berries at least in half, then I sprinkle them with sugar in the proportion of one part sugar to five parts berries, stirring them gently until the sugar is dissolved, after which I spoon them carefully into airtight containers and freeze them at once.

When freezing whole berries, I place them in a container and cover with a 40 or 50 per cent syrup. A heavier syrup should not be used on any fruit since it does not freeze, completely and has a tendency to weaken the seal. I find that preparing a few quarts at a time, quickly, is the best method for freezing strawberries.

A favorite recipe with Mrs. A. M. Markwell of Oklahoma City, Okla., is for cherry pudding.

CHERRY PUDDING

2 tablespoons butter
1 cup sugar
 $\frac{1}{2}$ cup milk
1 cup flour
1 teaspoon baking powder

Cream butter and sugar until well mixed (will not be creamy). Sift flour with baking powder. Add flour and milk alternately. Beat hard for a minute or two and pour into a greased baking dish.

On top of this batter put 1 cup cherries heated with $\frac{1}{4}$ cup sugar and $\frac{1}{4}$ cup hot water. Bake in a moderate oven, 350° F., for 30 minutes. Be sure it does not bake too fast. This pudding can be served hot with cream or cold with whipped cream. It is equally good made with berries.

From Miss Elizabeth Baker, Arcanum, Ohio, comes a poem on apple pie, written from true experience. She comments that her brother, when at home, devoured many an apple pie hot from the oven, with milk.

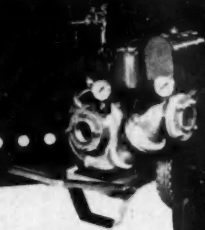
APPLE PIE

How welcome is the fragrant smell
Of apple pie a-baking,
To hungry men and hungry boys
Their manners quite forsaking,
They want it hot, right from the pan,
Then in sweet quirk it's sinking,
First thing I know, a pie is gone,
Their appetites not shrinking.

A hungry man, a hungry boy,
Devouring all my baking,
First half was gone—now it's all—
What punishment it's taking,
And then at last, two happy men
Look up at me and sigh,
"No better treat has any man
Than milk and apple pie!"

Do you have any good fruit recipes, interesting orchard experience stories, or a poem that you would like to share with other lady orchardists? If you do, send them to the Orchard Home Editor, *American Fruit Grower*, 106 Euclid Ave., Willoughby, Ohio. Payment will be made upon publication for anything used.

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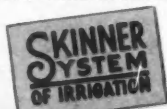


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A new pamphlet which contains valuable data on irrigation pumps has just been issued by the Marlow Pump Company. Pump sizes, from two to six inches; capacities, from 50 to 1,900 gallons; and gasoline and Diesel power are discussed in understandable and detailed terms. The booklet is available free from Marlow Pump Co., 652 Greenwood Ave., Ridge-wood, N. J.



The Irrigation Heart



The pump is the most vital part of any orchard irrigation installation. For over 50 years Barnes pumps have proven themselves in the fruit industry; and the (30M) four-inch Standard Automatic centrifugal pump, illustrated here, will handle most orchard irrigation problems. The Barnes Mfg. Co., 651 N. Main St., Mansfield, Ohio, will be glad to send you their latest free booklet.

Plastic Irrigation Pipe

Plastic, durable pipe, seven times lighter than steel, is now available to growers. Because of its light weight, resistance to rot, rust, and electrolytic corrosion, Carlon pipe has proven successful in portable orchard irrigation. The pipe is made in sizes from one-fourth inch to two inches, and in 20-foot lengths. Free information



From where I sit... *by* Joe Marsh

“One For The Book”

Miss Reynolds, our town librarian, really put a smart-aleck motorist in his place last week—happened right in center of town, corner of Main and Walnut.

Her car stalled, tying up traffic. Most drivers just waited quietly—realizing she couldn't help it—but one fellow kept blaring away on his horn.

So Miss Reynolds gets out of her car, walks over and says sweetly, “I'm afraid I can't start my engine. If you'd like to try, I'll stay here and lean on that horn for you.” That stopped him!

From where I sit, a lot of us are sometimes a little overeager to “sound off” before we really understand what it's all about. Let's try to see the other fellow's side in whatever he does—how he votes, what he thinks, whether his preference is for a glass of beer or buttermilk—rather than simply blast out anyone who “gets in the way” of our ideas in these matters.

Joe Marsh

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is obtainable by writing C. R. Stowe, Manager, Products Div., Carlson Products Corp., Meech Ave., Cleveland 5, Ohio.

Controlled Irrigation

A new 35-minute, 16 m.m. full-color and sound motion picture describing all methods of orchard and vegetable irrigation has just been announced. The film, entitled "Modern Controlled Irrigation," is available for group showings, at no charge for AMERICAN FRUIT GROWER readers. Merely write Irrigation Div., W. R. Ames Co., Dept. Y, 150 Hooper St., San Francisco 7, Calif., or 3905 East Broadway, Tampa 5, Fla.

Irrigation Couplers



Fruit grower B. W. Mumma, Dayton, Ohio, has had splendid success with Chicago Metal couplers. The coupler is welded to either galvanized or aluminum pipe; and, because of its construction, the joint between two pieces of pipe is flexible. A special rubber-sealing gasket keeps the joint watertight. This coupler can be connected or disconnected rapidly. The Chicago Metals Mfg. Co., 3741 S. Rockwell, Chicago 32, Ill., will be glad to send you their booklet.

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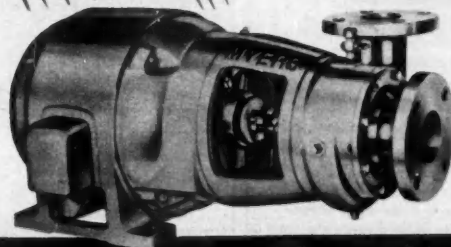


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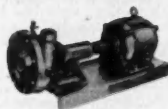
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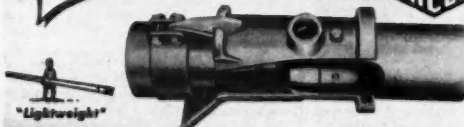
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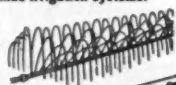
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STATE NEWS

(Continued from page 15)

parties, it looks like a bit of concession on the part of the canners. On the other hand, the growers have come through with a concession of their own.

This looks like a season when it might be possible to market a big volume of fruit. In such years it is difficult to get the entire industry to maintain quality and size standards; yet the California Canning Peach Association has agreed to deliver to the canners during the 1951 season only No. 1 fruit of a minimum size diameter of 2 3/8 inches and no culls.

At the same time the association will continue with its marketing order which carries an advertising program and continued research on new and better varieties and cultural methods to improve the quality of the cling pack.—Jack T. Pickett.

FLORIDA—Limes are now going to market in volume and the movement will continue all summer.

Practically the entire U. S. crop—now running close to 300,000 boxes (1 3/5 bushels per box) annually—is produced on approximately 5,000 acres in southern Florida. Two varieties are grown—the Key and the Persian. When mature, the Key is comparatively small and light yellow in color. The Persian, which leads in acreage and production, is large and green in color when ripe, a fact growers are endeavoring to get across to the general public in order to step up sales of this variety for hot-weather drinks and dishes.

With more than 3,000 acres, Dade County leads in production. And in this county where many lime growers also are avocado growers, co-operative effort has resulted in the organization of the Dade County Avocado-Lime Growers Council to promote the use of the two fruits. President of the council is Robert Ballard; vice president, T. J. Fitzgerald; and secretary-treasurer, Pat Rock.—Clyde Beale, Gainesville.

TEXAS—The Lower Rio Grande Valley lost many more trees in the February freeze than early estimates showed. The success attained by many growers with good acreage set to Redblush-type grapefruit argues strongly for replacement of lost acreage on good orchard land. There will be a shortage of planting stock until the fall of 1952. Grower interest centers on red grapefruit with some interest in early oranges of the Jaffa type for resetting.—W. H. Friend, Weslaco.

KENTUCKY—Strawberry crop will start to market about May 16. Prospects are fine for a good productive year as we had no winter injury. Apple prospects look good (May 12). Our peach crop is limited to a few lucky growers in southwestern Kentucky.—W. W. Magill, Sec'y, Lexington.

MISSOURI—Apple bloom is good. Weather has been excellent for pollination. Some fire blight is starting to show up. Peach crop is light. Apple crop is equal to 1949.—W. R. Martin, Sec'y, Columbia.

OHIO—Thomas E. Thornburg, well known grower of Ashland, died April 4. He was the fourth generation to grow fruit commercially on the Thornburg farm. His son and grandson will continue the tradition. Mr. Thornburg's grandfather was a friend of Johnny Appleseed who was a frequent visitor on the farm now owned by the Thornburgs.—C. W. Ellenwood, Sec'y, Wooster.

ILLINOIS—Apples are showing a full bloom and the set is expected to be heavy.

Mobile Orchard Heater

A mobile orchard heating arrangement enabled Walter Rawl to ward off spring frosts in his orchard in Lexington County, South Carolina. The arrangement consisted of several old partly rusted 1,000-gallon tanks which Rawl found in a junk yard. These he set on sleds hitched onto his tractors. Old automobile tires were used as fuel. The mobility of the setup permitted Rawl to travel back and forth along the windward side of the orchards, and by watching temperatures closely he was able to move the "heaters" quickly to the danger points.—J. L. Elzezer, Clemson, S. C.

The peach prospect is still "no prospect", except on the odd and early varieties. The expected five per cent Elberta crop is concentrated in the few blocks on highest ground and in the western area.—Harvey B. Hartline, Sec'y, Carbondale.

INDIANA—Low temperatures on November 24 and during the first week of February almost completely wiped out our peach crop. Apple bloom has been heavy and pollination is believed sufficient to set a good crop.—Ray Klucke, Sec'y, West Lafayette.

MICHIGAN—Generally, the fruit picture is bright.

Minard E. Farley, Sr., prominent grower and partner of the Farley Brothers Orchards, died April 13, at his home in Albion. Mr. Farley was treasurer of the Michigan Apple Institute and director of the Michigan Mutual Hail Insurance Company. He was a past president of the Michigan State Horticultural Society. Mr. Farley's two sons, Minard E., Jr., of Lansing, and George, of Albion, are secretary-manager of the Michigan State Apple Commission and manager of Inland Orchards, respectively.—Arthur E. Mitchell, East Lansing.

PENNSYLVANIA—Peach prospects are good. Apple bloom is heavy and weather has been ideal for pollination. Normal set would result in a large crop over entire area.—J. U. Ruef, Sec'y, State College.

VIRGINIA—Contrasted to the short peach crop in 1950, the prospect for 1951 is good. Apple prospects likewise are good. Delicious may be short, and Yorks less than in 1950. Better prospects in other varieties are expected to more than offset this reduction. Very little scab infection thus far.—J. F. Watson, Sec'y, Staunton.

MARYLAND—Peach and apple trees have come through some late frosts with little apparent injury. Bloom was heavy. Delicious apples show spotty prospects. Raspberry and strawberry crops are looking very good both in size and quality.—A. F. Vierheller, Sec'y, College Park.

NEW YORK—Peaches, sweet and red tart cherries, and pears were in heavy bloom on May 14. Apples were pink in western New York. Bud looks good but is lighter than last year on McIntosh and Baldwin.—D. M. Dalrymple, Sec'y, Lockport.

NEW JERSEY—No appreciable winter or late spring frost damage has been reported and weather during peak of blossom was favorable for pollination. Peach crop is estimated at 1,500,000 bushels, 300,000 less than last year.—N. J. Dept. of Agr.

AMERICAN FRUIT GROWER

RHODE ISLAND—Practically no periods have occurred thus far for scab infection. By May 14 most apple growers had applied five to seven sprays—a high figure for this time of year.—*D. J. Steere, Sec'y, Kingston.*

MASSACHUSETTS—Fruit bloom generally is heavy. Overall frost damage on May 13 in the Nashoba apple district is estimated at about five per cent.—*W. R. Cole, Sec'y, Amherst.*

CONNECTICUT—Fruit bloom is full to heavy except on Baldwin which produced heavily last year. Pollination weather has been wonderful. First scab infection period with rain occurred on May 11. Weather is favorable for earlier than normal insect emergence and development.—*S. P. Hollister, Sec'y, Storrs.*

VERMONT—McIntosh orchards in southern counties are in full pink (May 15) with a heavy bloom in prospect. Orchards in the Champlain Valley section are somewhat slower. McIntosh blossom is lighter than last year in western counties, with a much heavier blossom outlook for Delicious, R. I. Greening, and Northern Spy varieties. Scab and insect control has not been difficult so far due to lack of rain.—*C. Lyman Calahan, Sec'y, Burlington.*

DELAWARE—Peaches and apples have excellent crop prospects.

The Agricultural Substation at Georgetown will have 55 new and standard varieties fruiting this year. The first fruit will be picked about June 25. Fruit growers from the Peninsula and from nearby states are invited to inspect the orchard. The last fruit will be picked about September 10 to 15.—*Robert F. Stevens, Newark.*

NEW HAMPSHIRE—Prospects are for another good apple crop. McIntosh and Gravenstein bloom is heavy, Baldwin spotted (May 14). Weather has been favorable for scab control.—*E. J. Rasmussen, Ext. Hort., Durham.*

MAINE—Bloom is full on most apple varieties. Weather is favorable. Could be a bumper crop.—*Rockwood N. Berry, Sec'y, Livermore Falls.*

KANSAS—Prospects are excellent for a fine fruit crop. A good many growers are resorting to hormone thinning.—*H. L. Drake, Sec'y, Bethel.*

MINNESOTA—Strawberries came through the winter in excellent condition. Crop prospects for apples and most other fruits are good. Apples are not yet in bloom (May 15), the season being at least 10 days later.—*J. D. Winter, Sec'y, Mound.*

IOWA—Apple prospects are good to excellent. Orchards are in full bloom (May 15). Plenty of soil moisture over most of the state. Some growers will use thinning sprays.—*W. H. Collins, Sec'y, Des Moines.*

IDAHO—Fruit prospects were reduced by frost. The majority of orchards came through in good shape but many of those in the frost areas were hit very hard. As a result, fair crops of apples, cherries, prunes, and peaches are forecast. Apricots will be scarce. Delicious apples were hard hit.—*Anton S. Horn, Sec'y, Boise.*

WASHINGTON—Temperatures of 20 and 22 degrees in mid-April resulted in severe damage in scattered areas to sweet cherries, peaches, and apricots. Prospects for apples, pears, and prunes were also reduced. The Delicious apple crop suffered greater damage than Winesap. The apple crop will be below the large 1950 figure.

JUNE, 1951



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*Type ENP	80 U.S. gallons per minute at 21 lbs.
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EQUIPMENT SHORTAGES

(Continued from page 12)

will be in a position to supply agricultural sprinklers in quantities approximately equal to those supplied last year." On the West Coast, J. M. Kroyer, of Stout Irrigation, Inc., Portland, Ore., states, "If under the Controlled Materials Plan the Department of Agriculture is successful in securing from NPA a satisfactory allotment of aluminum (primarily aluminum tubing) to further the development of sprinkler irrigation, we feel hopeful of maintaining an operation that will produce enough volume to enable us to make our contribution to the expansion of the food production program."

Long-Range Planning Suggested

Robert Morgan of R. M. Wade & Co., Portland, Ore., says, "From the standpoint of cast aluminum couplers, the oscillating type agricultural sprinklers, pumping equipment and engines, also electric motors, the supply seems to be reasonably adequate to take care of this growing season's demands." In Spokane, Wash., Gordon Hawkins of Rainway Irrigation Co., Inc., told AMERICAN FRUIT GROWER the following, "Our company alone could handle four times the quantity of pipe which we are receiving this season, but we haven't had too much trouble supplying the sprinkler heads, pipe couplings, and fittings."

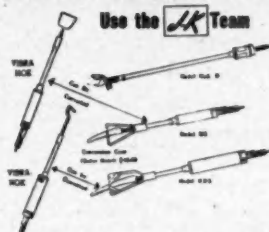
A. W. McCulloch of Irrigation Equipment Co., Eugene, Ore., advises: "I think the directive and DO order that we will probably receive and which will be operated under CMP after July 1, will definitely make it not more than 100 per cent of the use during 1950. At least this is the outlook at the present time and unless more emphasis is placed on food production later on, I think we cannot anticipate that this amount will be increased."

In Florida, J. W. Brandstetter, vice president and general manager of Race & Race, Inc., Winter Haven, makes the following observation: "It is our opinion that the procuring of all items necessary for the manufacture and assembly of complete irrigation systems will be easier to obtain under CMP even though the quantities are smaller. If growers could be sold on long-range planning for their irrigation needs, production could be partially maintained."

Plenty of Pumps

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MODEL MED. B—Cuts limbs up to 1 1/2" diameter. Requires 4 cu. ft. free air at 175-200 lbs. Available in lengths from 3 ft. up.

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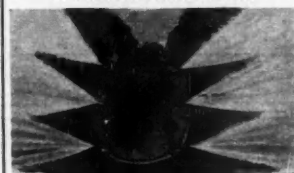
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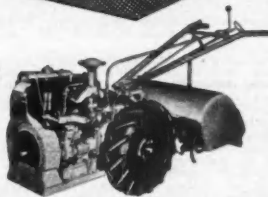


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in most sizes, can be purchased with little delay," says G. U. Miller of Marlow Pumps, Ridgewood, N.J. "Our supply of pumps will be sufficient to meet any ordinary demands this season. Deliveries on engines are quite extended but we are forecasting our requirements and will be able to obtain engines for this season since they were ordered last year. Other component parts and raw materials are not quite so difficult to obtain and we expect to have a sufficient supply. Unless we have a severe drought this summer or get into an all-out war, it is expected that our supply will be sufficient to meet demands."

Another leader in irrigation pumping equipment is in the following fortunate position. Gilmore Hiett of the Gorman-Rupp Co., Mansfield, Ohio, frankly states: "Our supply of pumps for the remainder of 1951 will be 50 per cent greater than in 1950. Today we are in excellent position to ship irrigation pumps." Fred B. Hout of Barnes Mfg. Co., Mansfield, Ohio, also optimistically says, "We will be able to continue to supply the important farm irrigation market even though we may have to scramble for necessary material." Goulds Pumps, Inc., Seneca Falls, N.Y., according to G. W. Cramer, are going along on a fairly good basis with deliveries averaging four to six weeks, depending upon the pump involved.

"Deming pumps are available and in stock, particularly with Wisconsin and Chrysler industrial engines, for immediate delivery," is the encouraging report from L. H. Taylor of the Deming Company, Salem, Ohio. Mr. Taylor states further, "Deep-well turbines are in slightly tighter supply, but Deming will expedite all orders for growers so that the equipment is received in ample time for their irrigation installations."

From the foregoing it is apparent that anyone contemplating irrigation need have no hesitancy in going ahead. At least in the present year there do not appear any formidable obstacles, but delay may mean facing an entirely different situation in a year or so. For further information concerning available materials, AMERICAN FRUIT GROWER invites its readers to write the manufacturers who have contributed their experience in solving the irrigation supply problem.

NEW BULLETINS

• **Nutrient Deficiencies in Utah Orchards** (Bull. 338, 1950) Utah State Agri. Coll., Logan, Utah.

• **Roadside Marketing of Fruits and Vegetables** (Bull. 418, 1950) Univ. of Conn. Agri. Ext. Service, Storrs, Conn.



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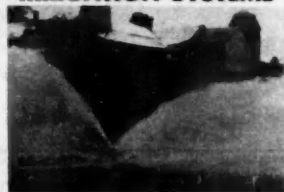
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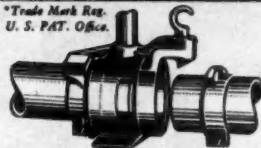
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June 14-16—First annual Cape Cod Strawberry Festival, Falmouth, Mass. A strawberry queen is to be selected.—John R. Peterson, chairman, Festival Committee, Falmouth, Mass.

June 16—New York & New England Apple Institute meeting in co-operation with Connecticut Pomological Society, Orkell Farm, West Simsbury, Conn.—S. F. Hollister, Sec'y, Pom. Soc., Storrs.

June 18-23—Emmett, Idaho, Cherry Festival. Queen to be crowned.—Anton S. Horn, Sec'y, Hort. Society, Boise.

June 27-28—Louisiana Fruit Growers Association first annual peach festival, Ruston, Turner Hernandez, Program Chairman, Ruston.

July 12-13—National Cherry Festival, Traverse City, Mich.—A. E. Mitchell, Dept. of Hort., East Lansing, Mich.

July 19—Massachusetts Fruit Growers Association summer meeting, View North Orchard of G. S. Gay, association president, Palmer.—W. R. Cole, Sec'y, Amherst.

July 20—Oregon State Horticultural Society Field Day, Medford.—C. O. Rawlings, Sec'y, Corvallis.

July 25-28—Pennsylvania State Horticultural Association summer meeting, 28th, Ardmoreville, Adams County, tour 26th, Franklin County, orchards of Bream and Hebe, S. A. Heiser & Sons, and Gillan Bros.—J. U. Ruef, Sec'y, State College.

July 27-29—Hopkins, Minn., Annual Raspberry Festival. Queen to be crowned.—Lee McNally, Chairman, Hopkins.

Aug. 1—Indiana Horticultural Society summer meeting and orchard tour, Johnson Orchard, Mooresville.—Ray Klackie, Sec'y, West Lafayette.

Aug. 6-7—South Dakota State Horticultural Society annual meeting, Yankton, with H. N. Dyring, President, presiding.—W. A. Simmons, Sec'y, Sioux Falls, S. D.

Aug. 12-15—International Apple Association annual convention, Hotel Statler, New York City.—Samuel Fraser, Sec'y, 154 East Ave., Rochester 4, N. Y.

Aug. 16—Orchard Day, Ohio Experiment Station, Wooster, Ohio.—C. W. Ellenwood, Sec'y, Hort. Society, Wooster.

Aug. 23-25—Northern Nut Growers Association 42nd annual meeting, Illini Union Bldg., University of Illinois, Urbana. Annual tour, Aug. 30-31.—J. C. McDaniel, Sec'y, Hort. Field Lab., Urbana, Ill.

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APPLE TREE BORER

(Continued from page 15)

body just behind the head. They are about an inch to an inch and one-half in length when fully grown.

This borer spends the winter in the larva or borer stage in the wood of the tree. For the most part there are two sizes of borers present in the southern portion of the infested area and three sizes in the northern portion, the smaller ones being from eggs laid that season and the larger ones those that will complete development and emerge as adults the next season. The middle-sized borers in the north have another season to feed before reaching maturity.

In the spring, after spending from two weeks to a month in the pupal stage, the two- or three-year-old borers, as the case may be, emerge as brown and white cylindrical adult beetles. On the back are two white stripes which extend from the head to the posterior end. The legs, head, and underside of the body are also white. These adults crawl over and eat the foliage from June to about September. During this time the females lay their eggs in the bark of the trunk of apple trees. They may be placed from just below the ground to 18 to 20 inches above ground.

Within two or three weeks after they are laid, the eggs hatch into the tiny borers which first feed on the inner bark. As they grow older they work into the woody part of the tree. It usually requires two to three years for the insect to complete its life cycle.

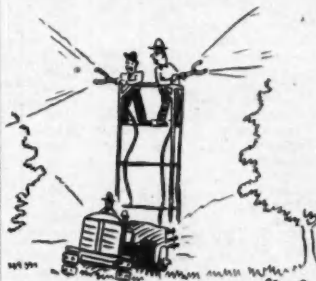
Control. Roundheaded apple tree borers can be controlled to some extent by spraying, by injecting chemicals into the borer tunnel, or by worming. Though seldom a serious pest, this insect if allowed to multiply unchecked in an orchard can do great damage.

The regular spray schedule may control this pest; if not, apply lead arsenate, three pounds per 100 gallons, about three weeks after petal fall and again two to three weeks later. Heavy DDT sprays with a sticker are being tested in Illinois and elsewhere, to control the borer.

The safest effective materials for injection into the borer burrows include 1) a mixture of paradichlorobenzene and carbon disulfide (one gram to one cc), 2) dichloroethyl ether, 3) an alcoholic extract of pyrethrum (containing 1.5 to 2.5 per cent of pyrethrins, and 4) a 1.5 per cent extract of rotenone. The last two materials may be used alone or diluted one part to four parts of 95 per cent alcohol. Plug the holes with putty after injecting the chemical.

In late August or September the borers can be removed by hand. This is accomplished by using a knife point for the shallow borers and a flexible wire to get those deep in the wood.

Wrapping trunks of trees to a height of 18 inches with stout paper in early June is also recommended where infestations are heavy.



"If you yell, 'There she blows,' again, I'll have you fired!"

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RICHARD T. MEISTER, Editor
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Artificial Soft Drinks Vs. Natural Fruit Juices

DIETITIANS, nutritionists, and health authorities generally are alarmed about the startling increase in sugar consumption which, strangely, is paralleled by the rapid expansion of the soft drink business. About 10 per cent of these drinks is sugar, and in a popular brand each six-ounce bottle actually contains three and one-half teaspoons of sugar. It is no wonder, therefore, that two million tons or one-fourth of our entire sugar requirements are used by the soft beverage industry.

Sugar is a vital ingredient in soft

drinks; yet this terrific carbohydrate is entirely lacking in either vitamins or minerals, of which we find such an abundance in sweet, pure fruit juices. With such advantages in favor of fruit, it becomes increasingly plain that any preference for a soft drink is due to its sweetened content and that sugar is the insidious rival of natural fruit juices. The sugar habit is easy to acquire and flourishes until tooth decay and such degenerative diseases as diabetes and heart disease demand a return to a more healthful diet, the basis of which is fruit.

Water Problems Are Surging Ahead

AS ONE PROBLEM is met and conquered, another takes its place. A hundred years ago the variety problem was paramount. Then came matters of culture. Pollination and fruit set appeared at the turn of the century, followed by cultivation versus sod, cover crops and fertilizers, also pruning.

Soon came the more technical and refined treatment of orchard problems, in which the scientific method, the laboratory, and the detailed controlled experiment dominated.

Distant shipments brought studies of maturity, harvesting, handling, storage, and ripening. These in turn gave ground to standardization, marketing, economic studies, and conservation practices.

Today another phase asserts itself—perhaps more quietly and less spectacularly than some of the others, but nonetheless important. And this phase is WATER—its conservation and use.

Of course, the great irrigated areas of the world have long appreciated water. But other areas that depend upon rainfall could do nothing but hope and pray. Now all this is changed. Portable pipe, cheaper power, and improved pumps and power plants have done it. The great non-irrigated sections are beginning to see what supplemental irrigation can do. Much of the hazard of drought is removed. Small fruits be-

come dependable crops. Problems of poor size and color, uncertain response to fertilizers, irrigation cropping, and poor quality are being solved.

The field is open for much study and improvement; but fruit growing will never be the same as before mid-century. Water is doing it.

Fruit Situation at a Glance

PRODUCTION			
	Average 1939-48	1949	USDA May 1, Est. 1951
Thousand Boxes			
Oranges			
Calif., all	48,453	41,880	44,000
Nevads & Misc.	18,462	15,530	14,500
Valencias	29,891	26,320	30,300
Florida, all	42,780	58,500	62,300
Early & Mid- season	23,250	33,000	35,300
Valencias	19,530	24,900	27,000
Other States	4,837	3,105	4,450
Total Early & Midseason	44,720	51,295	52,550
Total Valencias	51,351	52,170	58,000
Tangerines	3,630	5,000	4,800
Grapefruit			
Florida	25,450	24,200	31,000
Texas	18,107	8,400	7,500
Other States	6,095	5,900	5,470
Lemons	13,055	11,360	13,000
COLD STORAGE HOLDINGS			
	Mar. 31, 1948-50 Average	Apr. 30, 1951	Apr. 30, 1951
Thousand Bushels			
Apples, Fresh, Total	3,462	12,891	6,893
Pears, Fresh, Total	101	320	139

Fruit Talk

According to "USDA" the American people spend about six billion dollars annually for packaging the things they buy. In monetary terms, packaging is a greater industry than steel.

In appreciation of a distinguished son, Michigan State College has announced the establishment of a "Liberty Hyde Bailey Distinguished Professorship in Horticulture." The chair is to be endowed and will recognize the broad and inclusive aspects of horticulture.

Dr. Earl Savage of the Georgia Experiment Station reported at the St. Louis meeting of the American Pomological Society that four big changes in the Georgia peach situation were: 1) Heavy reduction of commercial trees. 2) Southward movement of the industry within the state. 3) Shift towards early, yellow-fleshed varieties. 4) Exceptional control of insects and diseases with new spray materials—"one and one-half pounds of 15 per cent parathion take care of almost everything!"

D. Martin and W. M. Carne of Australia have just announced that they can find no direct effect of boron on the control of bitter pit in apples. (Bitter pit must not be confused with internal corking, which is controlled by boron.) However, they find an indirect effect as follows: Bitter pit is associated with large size of fruit. Excess boron reduces both tree growth and fruit size and so may apparently reduce bitter pit. They suggest that the same effect can be produced by other salts, such as potassium phosphate, or other treatments that will reduce the size of fruits.

Monroe, a recent introduction of the New York Experiment Station, Geneva, is a cross of Jonathan and Rome Beauty. It is recommended for trial because of its high red color and good size, and because it has some of the desirable characters of Baldwin but is much better in quality. . . J. C. McDaniel in "Fruit Varieties" suggests Lodi as a probable replacement for Yellow Transparent—fruit larger, more uniform, tree less inclined to biennial bearing, longer commercial life expectancy.

A. N. Pratt, state horticulturist of Tennessee, isn't referring to gold when he uses the term "panning"—he has reference to strawberries: "The pan is a single piece of heavy tin or light galvanized iron about the size of a sheet of typewriter paper, with a three-fourths to one-inch flange on one end and two sides. The pan tapers to the open end which is slightly narrower than the side of a one-quart till. Some pans have a hole cut in a corner of the bottom through which the operator thrusts his thumb, holding the pan as an artist does his palette. The operator can toss out a quart of field-run berries gently into an even spread on the pan and, as the berries are run back into the till, pick out any defective berries or trash."

—H.B.T.

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